Wider Dissemination of Castor Bean Allergen

Factors Presaging Increasing Incidence of Disease in California

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• With the growing, transportation and processing of castor beans in California rapidly increasing, it is probable that the incidence of allergic disease owing to sensitivity to the castor bean allergen also will increase.

ALLERGIC DISEASE caused by sensitivity to castor beans, previously reported as a burgeoning problem in Southern California owing to increased use of the pomace as fertilizer,[5] appears likely to affect more and more persons now that the growing, transportation and processing of the beans is becoming more widespread and the chances for exposure to the allergen concomitantly extended.

Last year the author[5] reported 11 cases of asthma or hay fever in city dwellers owing to sensitivity to castor beans. Vaughan[6] in 1931, and Keeney[4] more recently, noted specific reaction in farmers who used castor bean pomace as fertilizer. In 1928 Figley and Elrod[2] described allergic manifestations owing to dust emitted from a factory where oil was pressed from castor beans; and in 1950 Figley and Rawling[3] and Coulson and co-workers[1] reported the presence of castor bean allergen in green coffee, probably as a result of shipment in the holds of vessels that contained castor bean dust from previous cargoes.

Considerable increases in production and processing of castor beans in this country in recent years have been induced by a policy of the U. S. Department of Agriculture. During the war years when the hazards of shipping made supply from abroad precarious, the department began a program to encourage production in this country by guaranteeing an attractive price for domestically grown beans and by other means. Now the need for castor oil in jet propelled planes has created additional demand.

In 1949 only 100 acres of California farmland was planted to castor beans. In 1950 the acreage was 9,000, and in 1951 it was 28,000. The 1951 harvest was about 20,000,000 pounds, or about half the beans processed in the state during that year.

Of the land planted to castor beans in 1951, some 19,500 acres was in the Imperial Valley, 7,000 in the San Joaquin Valley and 500 in Antelope Valley. Harvest-time (when allergic disease owing to castor bean dust is most likely to occur in agricultural workers) is October and November in the San Joaquin and Antelope valleys and December and January in Imperial Valley. The beans are transported by trucks to the nearest railroad and thence by box-car to the factories, two of which are located in Los Angeles and one in Contra Costa County.

In addition to the beans grown in California, about 20,000,000 pounds of them are imported annually at the ports of Los Angeles and San Francisco.

Although castor beans have been pressed commercially for oil in California since 1933, until recently almost all the beans processed were imported in ships. Now, with expanding domestic crops and increased handling of the beans by agricultural workers, railroad and trucking line employees, warehousemen, stevedores and workers in processing plants, there is likelihood of greater incidence of allergic disease among persons sensitive to castor bean allergen. (Cases have been reported of asthma caused by castor bean dust in persons who worked in railroad warehouses where the beans were stored.)

In addition, more pomace will be available for fertilizer, and persons who spread it and those who live near where it is used, in urban as well as rural areas, will be exposed to the allergen. A further probability is that since trucks, box-cars, ships and warehouses that have contained castor beans are difficult to decontaminate, other commodities subsequently transported or stored in such facilities also will carry some of the allergen.

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